

Application No.: 10/552,532
Amendment Dated: January 28, 2010
Reply to Office Action of: November 2, 2009

MAT-8748US

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 3. This sheet replaces the original sheet.

Remarks/Arguments:

Claims 1-8 are presently pending. Claim 1 has been amended. Reconsideration is respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112

Page 2 of the Office Action sets forth "Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph" for reciting in claim 1 that "the annular lubricant groove has an inner rim and an outer rim on the upper end of the main shaft." Applicant herein amends claim 1 to remove this language. Accordingly, Applicant respectfully submits that this rejection is obviated.

Pages 2-3 of the Office Action sets forth "Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph" for reciting in claim 1 "the annular lubricant groove has an inner rim and an outer rim on the upper end of the main shaft" and for reciting in claim 1 "the opening." Applicant herein amends claim 1 to remove this language. Accordingly, Applicant respectfully submits that the rejection based on these phrases is obviated.

Further, page 2 of the Office Action sets forth "Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph" for reciting in claim 1 "an annular lubricant groove provided between an upper end of the main shaft and an upper end of the bearing." Applicant herein amends claim 1 to recite:

...an annular lubricant groove having an inner rim and an outer rim...

...a bearing for supporting the main shaft, the bearing defining in part the outer rim of the annular lubricant groove...

...wherein the shaft includes...a circumferential notch defining in part the inner rim of the annular lubricant groove....

This means that the annular lubricant groove has an inner rim defined in part by a circumferential notch in the shaft. The annular lubricant groove has an outer rim

defined in part by the bearing. Applicant respectfully submits that claim 1 clearly points out the subject matter which Applicant regards as the invention. Accordingly, Applicant respectfully requests that this rejection be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Page 3 of the Office Action sets forth "Claims 1-8 are rejected under 35 U.S.C. 103(a) as being...unpatentable over Nobuo et al. (Japanese patent publication number S62-44108) in view of Goodnight (US patent number 6457561B1) further in view of Choi (US patent number 5971724) and Fujiwara et al. (US patent number 4472114)."

Applicant respectfully submits that this rejection is overcome by the amendments to the claims for the reasons set forth below.

Applicant's invention, as recited by claim 1, includes features which are neither disclosed nor suggested by Harper, namely:

...an annular lubricant groove having an inner rim and an outer rim...

...a bearing...defining in part the outer rim of the annular lubricant groove...

...wherein the shaft includes...a circumferential notch defining in part the inner rim of the annular lubricant groove....

As set forth above, this means that the annular lubricant groove has an inner rim defined in part by a circumferential notch in the shaft. The annular lubricant groove has an outer rim defined in part by the bearing. This feature is described in the application, for example, at page 4, lines 8-20; page 5, line 12 to page 6, line 2; page 7, lines 1-14; and FIGS. 1-3. No new matter is added. Applicant submits that one of ordinary skill in the art would understand the above-mentioned portions of the specification, and particularly the horizontal line at the top of main shaft 123 in FIGS. 1-3, as disclosing the circumferential notch 197 of main shaft 123 such that the inner rim 199 of annular lubricant groove 141 is defined in part by the circumferential notch 197 while the outer rim 198 of annular lubricant groove 141 is defined in part by the chamfered section of bearing 121.

The Office Action acknowledges that Nobuo in view of Goodnight and Choi fails to disclose "an annular lubricant groove...provided between an upper end of the main shaft and an upper end of the bearing...wherein the annular lubricant groove has an inner and outer rim...." Applicant respectfully submits that the addition of Fujiwara fails to make up for the deficiencies of Nobuo, Goodnight, and Choi with respect to at least these features.

Fujiwara is directed to an electric compressor. Fujiwara discloses an electric compressor 10 having a rotating shaft 58 supported in a bearing 64. A guide groove 70 is formed on the outer surface of rotating shaft 58. Bearing 64 includes a gain portion 72 connected to the guide groove 70. See Fujiwara at column 4, lines 11-35, and FIG. 1.

The gain portion 72 is defined in part by the bearing 64. Thus, the gain portion 72 of Fujiwara solely corresponds to the outer rim of the annular lubricant groove of claim 1. Fujiwara fails to disclose, teach, or suggest shaft 58 including a circumferential notch. Thus, Fujiwara fails to disclose, teach, or suggest gain portion 72 including an inner rim defined in part by a circumferential notch in shaft 58. This is different from claim 1, which requires an annular lubricant groove having an inner rim defined in part by a circumferential notch in the shaft and an outer rim defined in part by the bearing.

Accordingly, Applicant respectfully submits that Fujiwara fails to disclose, teach, or suggest "an annular lubricant groove having an inner rim and an outer rim...a bearing...defining in part the outer rim of the annular lubricant groove...wherein the shaft includes...a circumferential notch defining in part the inner rim of the annular lubricant groove," as recited in claim 1.

It is because Applicant's claimed invention requires that the annular lubricant groove have an inner rim defined in part by a circumferential notch in the shaft and an outer rim defined in part by the bearing that the following advantages are achieved. "[R]everse leading groove 139 opens into an inner rim 199 of annular lubricant groove 141.... The lubricant is then pushed to the outer rim 198 of annular lubricant groove 141 by the centrifugal force, so that little amount of the lubricant flows [backward] into reverse leading groove 139." See the application at page 5, line 26 to page 6,

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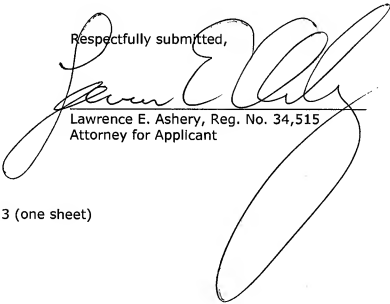
line 2. Similarly, "[F]orward leading groove 137 opens into inner rim of annular lubricant groove 141, and the lubricant is pushed to the outer rim of annular lubricant groove 141 by the centrifugal force [generated by the rotation of main shaft 123], so that little amount of the lubricant flows [backward] into forward leading groove 137." See the application at page 7, lines 11-14.

Accordingly, for the reasons set forth above, claim 1 is allowable over the art of record. Withdrawal of the rejection and allowance of claim 1 is respectfully requested.

Claims 2-8 include all of the features of claim 1, from which they depend. Thus, claims 2-8 are also allowable over the art of record for at least the reasons set forth above with respect to claim 1. Withdrawal of the rejection and allowance of claims 2-8 is respectfully requested.

Applicant respectfully asserts that the above-identified application is in condition for allowance, which action is respectfully requested.

Respectfully submitted,



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Enclosure: Replacement FIG. 3 (one sheet)

Dated: January 28, 2010

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